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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,960	03/26/2004	Frank Olschewski	21295.78 (H5780US)	7913

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HOUSTON ELISEEVA  
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LEXINGTON, MA 02421

EXAMINER
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ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/17/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,960	<b>Applicant(s)</b> OLSCHEWSKI ET AL.	
	<b>Examiner</b> Dennis Rosario	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 3/26/04 9/7/04.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 3 is objected to because of the following informalities:

Claim 3, line 2: "the recovery" and "the controlled" have no antecedent basis.

Claim 4, line 10: "the intensity distribution function" has no antecedent basis.

Claim 7 ought to depend on claim 6, not on its self.

Claim 9 ought to depend on claim 8, not on its self.

Claim 10 ought to depend on claim 9, not on it self.

Claim 8 is objected for the same reasons as claim 3.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4,9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claims 4 and 9, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

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In addition, claims 4 and 9 appear to claim measured data that encompasses at least one of:

- a) image data;
- b) geometrical data of the virtual reference subject, such as center point, area, periphery, or
- c) volume, or
- d) magnitudes derived from geometrical data of the virtual reference subject, such as velocity, acceleration, volume and area growth rates, and
- e) collision statistics of virtual reference subjects.

Thus, claims 4 and 9 will be interpreted as such for examination purposes.

Regarding claim 10, line 3: "the manipulation...excision" is not properly written in the context of claim 10. Claim 5 is a corresponding claim that will be used as a guide for interpreting claim 10.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Garakani et al. (US Patent Application Publication No.: 2003/0185450 A1).

Regarding claim 1, Garakani discloses a method for performing interactions, using a microscope, on microscopic subjects that change in space and time, comprises the following steps:

- a) acquiring at least one image (as shown in fig. 1,num 107) of a sample that encompasses at least one microscopic subject;
- b) defining by the user virtual reference subjects (or “window size” in paragraph [0184], line 4) on a discrete grid (as shown in fig. 6,num. 601) of the acquired image or images, in order to define regions (as shown within fig. 1,num. 107);
- c) automatic acquiring of a sequence of image data (as shown in fig. 1,num. 108) or volume data;
- d) successive identifying an optical flux (as shown in fig. 6,num. 605) based on the sequence of acquired images;

- e) applying the identified optical flux to the defined reference subjects (as shown in fig. 6, num. 605 that is along "Image i+2" as shown in fig. 6 which corresponds to said window size); and
- f) performing interactions (as shown by an arrow similar to 605 that represents said flux that passes through said "image i+2" and "image i+1" as shown in fig. 6) on the reference subject modified (the window is modified since an arrow is used to associate the window to other windows) by the optical flux.

Regarding claim 2, Garakani discloses the method as defined in claim 1, wherein the virtual reference subjects are defined as:

- a) regions (fig. 6, numerals 602-604),
- b) discrete point sets, or
- c) local coordinate systems on the reference grid of the image sequence, and
- d) define interaction locations (that "share" in [0173], line 7).

Regarding claim 3, Garakani discloses the method as defined in claim 1, wherein the interactions encompass:

- a) the recovery ( or "reconstructed" in [0111], line 10) of measured data of the subject or
- b) the controlled manipulation of the subject at the positions defined by the virtual reference subjects.

Regarding claim 4, Garakani discloses the method as defined in claim 3, wherein the recovery of the measured data encompasses

- a) image data (as shown in fig. 1,num. 107);
- b) geometrical data of the virtual reference subject, such as center point, area, periphery, or
- c) volume, or
- d) magnitudes derived from geometrical data of the virtual reference subject, such as velocity, acceleration, volume and area growth rates, and
- e) collision statistics of virtual reference subjects; and
- c) determination of:
  - c1) the intensity (via a equation in [0125]) within the region defined by the virtual reference subject, by acquisition of the intensity distribution function (said equation) and
  - c2) any desired parameters (or "frequency" in [0126]) derived therefrom (said equation), such as mean, variance, skewness, or higher elements, as well as
  - c3) other parameters common in statistics (or "estimate" in [0127], line 2) such as quantile, median, or range width.

Regarding claim 5, the rejection of claim 5 is moot due to an "or" limitation of claim 3.

Regarding claim 6, Garakani discloses a system for interactions on microscopic subjects that change in space and time comprising:

- a) a confocal scanning microscope (fig. 1, num. 102) that guides an illuminating light beam over a subject;
- b) several detectors (fig. 1, num. 109) that identify, from the light proceeding from the subject, intensities from different spectral regions;
- c) a processing unit (fig. 2A, num. 202);
- d) a PC (fig. 2A, num. 204);
- e) an input unit (fig. 1, num. 105);
- f) a display (fig. 1, num. 104) on which an individual image is presented to the user; the user interactively defines virtual reference subjects on the image shown on the display, using the input unit for position definition;
- g) a means for determining the optical flux (fig. 3, num. 303) based on the intensities from different spectral regions identified by the detectors is housed in the processing unit; and
- h) a means for applying the optical flux (any numeral of fig. 3 except 303) to the virtual reference subjects is present in the processing unit and the processing unit controls interactions on the basis of the changed reference subjects.

Claim 7 is rejected the same as claim 2. Thus, argument similar to that presented above for claim 2 is equally applicable to claim 7.

Regarding claim 8, Garakani discloses the system as defined in claim 7, wherein the interactions (a "Broadest Reasonable Interpretation" is being applied, see MPEP 2111, since the claimed "interaction" was defined in the specification in paragraph [02]) accomplishes both:

- a) the recovery of measured data of the subject (as discussed in claim 3, above) and
- b) the controlled manipulation (via fig. 2A,num. 204) of the subject at the position defined by the virtual reference subjects.

Claim 9 is rejected the same as claim 4. Thus, argument similar to that presented above for claim 4 is equally applicable to claim 9.

Regarding claim 10, Garakani discloses the system as defined in claim 10, wherein the controlled manipulation of the subject is accomplished with respect to:

- a) the specific regions (as shown in fig. 6,num. 603) or positions in the subject,
- b) the manipulation by means of radiation ("radiation" in [0242], second to last line), for purposes of bleaching, photoactivation, cage-compound release, and cutting and excision.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miller et al. (US Patent 6,226,418 B1) is pertinent as teaching a method of corresponding points as shown in fig. 1.

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Soll et al. (US Patent 5,655,028) is pertinent as teaching a method of observing an object with associated direction as shown in fig. 9.

Szeliski et al. (US Patent 5,611,000) is pertinent for the same reasons as Miller as shown in fig. 8.

Nagasaki et al. (US Patent 5,506,912) is pertinent as teaching a method of teaching a motion vector as shown in fig. 2.

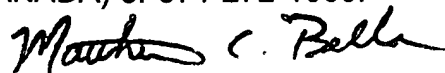
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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